Author Index

ABBOTT, L. K. (see PEARSON, J. N.), 93
——, (see ELLIOTT, G.), 375
AHMAD, I. & HELLEBUST, J. A., Partial characterization of enzymes of nitrogen metabolism in *Chlorella autotrophica* Shihira & Krauss, 685
AKED, J. & HALL, J. L., The uptake of glucose, fructose and sucrose into the lower epidermis of leaf discs of pea (*Pisum sativum* L. cv. Argenteum), 271
——, HALL, J. L., The uptake of glucose, fructose and sucrose into pea powdery mildew (*Erysiphe pisi* DC) from the apoplast of pea leaves, 277
——, HALL, J. L., Effect of powdery mildew infection on concentration of apoplastic sugars in pea leaves, 283
ALBRECHT, G., KAMMERER, S., PRAZNIK, W. & WIEDENROTH, E. M., Fructan content of wheat seedlings (*Triticum aestivum* L.) under hypoxia and following re-aeration, 471
ALSCHER, R. G. (see DOULIS, A. G.), 365
AMIJEE, F., STRIBLEY, D. P. & TINKER, P. B., The development of endomycorrhizal root systems. VIII. Effects of soil phosphorus and fungal colonization on the concentration of soluble carbohydrates in roots, 297
ANDERSON, R. C. (see DHILLION, S. S.), 77
ANDREW, R. (see WEST, R. G.), 203
ARINES, J., PALMA, J. M. & VILARIÑO, A., Comparison of protein patterns in non-mycorrhizal and vesicular–arbuscular mycorrhizal roots of red clover, 763
ASHER, C. J. (see BRADY, D. J.), 531
AVIO, L. (see GIOVANNETTI, M.), 115
AYDEMIR, Y. (see KRAUS, E.), 39
BAGNI, N. (see BIONDI, S.), 415
BANCAL, P. & TRIBOÏ, E., Temperature effect on fructan oligomer contents and fructan-related enzyme activities in stems of wheat (*Triticum aestivum* L.) during grain filling, 247
BASSIRIRAD, H., CALDWELL, M. M. & BILBROUGH, C., Effects of soil temperature and nitrogen status on kinetics of $^{15}NO_3^-$ uptake by roots of field-grown *Agropyron desertorum* (Fisch. ex Link) Schult, 485
BEAUMONT, G. (see PICHER, M.), 657
BELANGER, G. (see PRUD'HOMME, M. P.), 255
BHATTI, A. S., STEINERT, S., SARWAR, G., HILPERT, A. & JESCHKE, W. D., Ion distribution in relation to leaf age in *Leptochloa fusca* (L.) Kunth (Kallar grass). I. K, Na, Ca and Mg, 539
BILBROUGH, C. (see BASSIRIRAD, H.), 485
BIONDI, S., POLGROSSI, I. & BAGNI, N., Effect of polyamine biosynthesis inhibitors on mycelial growth and concentrations of polyamines in *Ophiostoma ulmi* (Buism.) Nannf., 415
BLAMEY, F. P. C. (see BRADY, D. J.), 531
BODDY, L. (see HENDRY, S. J.), 421
BONGHI, Z. C., CASADORO, G., RAMINA, A. & RASCIO, N., Abscission in leaf and fruit explants of *Prunus persica* (L.) Batsch, 555
BONNETT, G. D. & SIMPSON, R. J., Fructan-hydrolyzing activities from *Lolium rigidum* Gaudin, 443
——, (see SIMPSON, R. J.), 453
——, (see ST. JOHN, J. A.), 705
BOUCAUD, J. (see PRUD'HOMME, M. P.), 255
BOULETREAU, M. (see GAY, G.), 335
BRADY, D. J., EDWARDS, D. G., ASHER, C. J. & BLAMEY, F. P. C., Calcium amelioration of aluminium toxicity effects on root hair development in soybean , 531
BRIGGS, D. (see THEAKER, A. J.), 185
BROWN, N. A. C., Promotion of germination of fynbos seeds by plant-derived smoke, 575
BRUNNER, I. (see SCHEIDEGGER, C.), 123
BURNETT, Sir JOHN, Len Leyton 1916–1991, 1
——, Report on the Society for Low Temperature Biology Symposium, 395
CAIRNS, A. J., Evidence for the *de novo* synthesis of fructan by enzymes from higher plants: a reappraisal of the SST/FFT model, 15
CALDWELL, M. M. (see BASSIRIRAD, H.), 485
CANNY, M. J., Transfusion tissue of pine needles as a site of retrieval of solutes from the transpiration stream, 227
——, (see VARNEY, G. T.), 775
CARADUS, J. R., HAY, M. J. M., MACKAY, A. D., THOMAS, V. J., DUNLOP, J., LAMBERT, M. G., HART, A. L., VAN DEN BOSCH, J. & WEWALA, S., Variation within white clover (*Trifolium repens* L.) for phenotypic plasticity of morphological and yield related characters, induced by phosphorus supply, 175
CASADORO, G. (see BONGHI, Z. C.), 555
CASAL, J. J., Novel effects of phytochrome status on reproductive shoot growth in *Triticum aestivum* L., 45
CHATTERTON, N. J. (see LIVINGSTONE III, D. P.), 725
CHEVONE, B. I. (see DOULIS, A. G.), 365
CITERNESI, A. S. (see GIOVANNETTI, M.), 115
CLIFFORD, H. T. (see ROGERS, R. W.), 811
COFER, G. P. (see VERES, J. S.), 769
COLLIS, B. E. (see WILLIAMS, J. H. H.), 699
COLPAERT, J. V. & VAN ASSCHE, J. A., The effects of cadmium on ectomycorrhizal *Pinus sylvestris* L., 325
DAFNI, A. (see SCHUSTER, A.), 165
DARRALL, N. M. (see SHAW, P. J. A.), 143
DEACON, J. W. (see DONALDSON, S. P.), 289
DEBAUD, J. C. (see GAY, G.), 335
DHILLION, S. S. & ANDERSON, R. C., Growth dynamics and associated mycorrhizal fungi of little bluestem grass [*Schizachyrium scoparium* (Michx.) Nash] on burned and unburned sand prairies, 77
DICKINSON, N. M. (see TURNER, A. P.), 509, 523
DIETRICH, S. M. C. (see MACHADO DE CARBALHO, M. A.), 735
DONALDSON, S. P. & DEACON, J. W., Effects of amino acids and sugars on zoospore taxis, encystment and cyst germination in *Pythium aphanidermatum* (Edson) Fitzp. *P. catenulatum* Matthews and *P. dissotocum* Drechs., 289
DONG, L. F., NIMER, N. A., OKUS, E. & MERRETT, M. J., Dissolved inorganic carbon utilization in relation to calcite production in *Emiliania huxleyi* (Lohmann) Kamptner, 679
DOULIS, A. G., HAUSLADEN, A., MONDY, B., ALSCHER, R. G., CHEVONE, B. I., HESS, J. L. & WEISER, R. L., Antioxidant response and winter hardiness in red spruce (*Picea rubens* Sarg.), 365
DUBINSKY, Zvy (see HERZIG, Ronny), 665
DUIN, S. (see KRAUS, E.), 39
DUNLOP, J. (see CARADUS, J. R.), 175
EAGLES, C. F., WILLIAMS, J. & LOUIS, D. V., Recovery after freezing in *Avena sativa* L., *Lolium perenne* L. and *L. multiflorum Lam.*, 477
ECKARDT, N. (see PELL, E. J.), 153
EDMONDS, M. (see TIPPING, R.), 585
EDWARDS, D. G. (see BRADY, D. J.), 531
ELLIOTT, G., ROBSON, A. D. & ABBOTT, L. K., Effects of phosphate and nitrogen application on death of the root cortex in spring wheat, 375
FARRAR, J. F. (see WILLIAMS, J. H. H.), 699
FIELD, M. H., Plant macrofossils from the Lower Channel sediments at Marsworth, Buckinghamshire, UK, 195
FIGUEIREDO-RIBEIRO, R. C. L. (see TERTULIANO, M. F.), 741
FOUILLET, P. (see GAY, G.), 335
FREHNER, M. (see LÜSCHER, M.), 437, 717
GASTAL, F. (see PRUD'HOMME, M. P.), 255
GAY, G., MARMEISSE, R., FOUILLET, P., BOULETREAU, M. & DEBAUD, J. C., Genotype/nutrition interactions in the ectomycorrhizal fungus *Hebeloma cylindrosporum* Romagnesi, 335
GIOVANNETTI, M., AVIO, L., SBRANA, C. & CITERNESI, A. S., Factors affecting appressorium development in the vesicular–arbuscular mycorrhizal fungus *Glomus mosseae* (Nicol. & Gerd.) Gerd. & Trappe, 115
GORNALL, R. J. & WENTWORTH, J. E., Variation in the chromosome number of *Parnassia palustris* L. in the British Isles, 383

Grenier, G. (see Picher, M.), 657
Hall, J. L. (see Aked, J.), 271, 277, 283
Harrison, P. A. (see Livingstone III, D. P.), 725
Hart, A. L. (see Caradus, J. R.), 175
Hausladen, A. (see Doulis, A. G.), 365
Hay, M. J. M. (see Caradus, J. R.), 175
Heagle, A. S., Miller, J. E., Sherrill, D. E. & Rawlings, J. O., Effects of ozone and carbon dioxide mixtures on two clones of white clover, 751
Hellebust, J. A. (see Ahmad, Iftikhar), 685
Hendry, G. A. F., Evolutionary origins and natural functions of fructans – a climatological, biogeographic and mechanistic appraisal, 3
Hendpy, S. J., Boddy, L. & Lonsdale, D., Interactions between callus cultures of European beech, indigenous ascomycetes and derived fungal extracts, 421
Herzig, Ronny & Dubinsky, Zvy, Effect of photoacclimation on the energy partitioning between cyclic and non-cyclic photophosphorylation, 665
Hess, J. L. (see Doulis, A. G.), 365
Heyn, C. C. (see Schuster, A.), 165
Hilpert, A. (see Bhatti, A. S.), 539
Holland M. R., (see Shaw, P. J. A.), 143
Horgan, R. (see Sims, I. M.), 25
Huang, B. & Nobel, P. S., Hydraulic conductivity and anatomy along lateral roots of cacti: changes with soil water status, 499
Innes, J. B. (see Turner, J.), 599
Jacques, N. A., The fructosyltransferase of *Streptococcus salivarius*, 429
Jasper, D. A. (see Pearson, J. N.), 93
Jefferies, R. A., Cultivar responses to water stress in potato: effects of shoot and roots, 491
Jensen, E. S. & Pilegaard, K., Absorption of nitrogen dioxide by barley in open-top chambers, 359
Jeschke, W. D. (see Bhatti, A. S.), 539
Jha, D. K., Sharma, G. D. & Mishra, R. R., Mineral nutrition in the tripartite interaction between *Frankia*, *Glomus* and *Alnus* at different soil phosphorus regimes, 307
Johansen, C. V. (see Pell, E. J.), 153
Johnson, G. A. (see Veres, J. S.), 769
Kammerer, S. (see Albrecht, G.), 471
Koide, R. T. (see Schreiner, R. P.), 99, 107
Kollöffel, C. (see Kraus, E.), 39
Kottke, I. (see Turnau, K.), 313
Kraus, E., Aydemir, Y., Duin, S., Kollöffel, C. & Lambers, H., Yield advantage of a 'slow-' over a 'fast-' respiring population of *Lolium perenne* cv. S23 depends on plant density, 39
Lambers, H. (see Kraus, E.), 39
Lambert, M. G. (see Caradus, J. R.), 175
Livingstone III, D. P., Chatterton, N. J. & Harrison, P. A., Structure and quantity of fructan oligomers in oat (*Avena* spp.), 725
Lonsdale, D. (see Hendry, S. J.), 421
Louis, D. V. (see Eagles, C. F.), 477
Lüscher, M., Frehner, M. & Nösberger, J., Purification and some properties of fructan: fructan fructosyl transferase from dandelion (*Taraxacum officinale* Weber), 437
——, Frehner, M., Nösberger, J., Purification and characterization of fructan: fructan fructosyltransferase from Jerusalem artichoke (*Helianthus tuberosus* L.), 717
Machado de Carbalho, M. A. & Dietrich, S. M. C., Variation in fructan content in the underground organs of *Vernonia herbacea* (Vell.) Rusby at different phenological phases, 735
Mackay, A. D. (see Caradus, J. R.), 175
Manger, K. R. (see Pritchard, H. W.), 801
Mansfield, T. A. (see Pearson, M.), 351
Marmeisse, R. (see Gay, G.), 335
McLeod, A. R. (see Shaw, P. J. A.), 143
Merrett, M. J. (see Nimer, N. A.), 673
——, (see Dong, L. F.), 679
Miller, J. E. (see Heagle, A. S.), 751
Mishra, R. R. (see Jha, D. K.), 307
Miszalski, Z. & Niewiadomska, E., Comparison of sulphite oxidation mechanisms in three lichen species, 345
Mondy, B. (see Doulis, A. G.), 365
Mooney, H. A. (see Pell, E. J.), 153
Neuvonen, S. (see Tuomisto, H.), 787
Niewiadomska, E. (see Mizazalski, M.), 345
Nimer, N. A. & Merrett, M. J., Calcification rate in *Emiliania huxleyi* Lohmann in response to light, nitrate and availability of inorganic carbon, 673
——, (see Dong, L. F.), 679
Nobel, P. S. (see Huang, B.), 499
Nösberger, J. (see Lüscher, M.), 437, 717
Novoplansky, N. (see Sachs, T.), 567
Noy-Meir, I. (see Schuster, A.), 165
Oberwinkler, F. (see Turnau, K.), 313
Okus, E. (see Dong, L. F.), 679
Palma, J. M. (see Arines, J.), 763
Pearson, J. N., Abbott, L. K. & Jasper, D. A., Mediation of competition between two colonizing VA mycorrhizal fungi by the host plant, 93
Pearson, M. & Mansfield, T. A., Interacting effects of ozone and water stress on the stomatal resistance of beech (*Fagus sylvatica* L.), 351
Pell, E. J., Sinn, J. P., Eckardt, N., Johansen, C. V., Winner, W. E. & Mooney, H. A., Response of radish to multiple stresses. II. Influence of season and genotype on plant response to ozone and soil moisture deficit, 153
Perkins, S. K. & Peters, G. A., The *Azolla–Anabaena* symbiosis: endophyte continuity in the *Azolla* life-cycle is facilitated by epidermal trichomes. I. Partitioning of the endophytic *Anabaena* into developing sporocarps, 53
——, (see Peters, G. A.), 65
Peters, G. A. (see Perkins, S. K.), 53
——, Perkins, S. K., The *Azolla–Anabaena* symbiosis: endophyte continuity in the *Azolla* life-cycle is facilitated by epidermal trichomes. II. Re-establishment of the symbiosis following gametogenesis and embryogenesis, 65
Pettit, M. (see West, R. G.), 203
Picher, M., Grenier, G., Purcell, M., Proteau, L. & Beaumont, G., Isolation and purification of intralamellar vesicles from *Lemna minor* L. chloroplasts, 657
Pilegaard, K. (see Jensen, E. S.), 359
Polgrossi, I. (see Biondi, S.), 415
Pollock, C. J. (see Sims, I. M.), 25
——, (see Williams, J. H. H.), 699
Praznik, W. (see Albrecht, G.), 471
Pritchard, H. W., Wood, J. A. & Manger, K. R., Influence of temperature on seed germination and the nutritional requirements for embryo growth in *Arum maculatum* L., 801
Proteau, L. (see Picher, M.), 657
Prud'homme, M. P., Gastal, F., Belanger, G. & Boucaud, J., Temperature effects on partitioning of ^{14}C assimilates in tall fescue (*Festuca arundinacea* Schreb.), 255
Purcell, M. (see Picher, M.), 657
Ramina, A. (see Bonghi, Z. C.), 555
Rascio, N. (see Bonghi, Z. C.), 555
Rawlings, J. O. (see Heagle, A. S.), 751
Robson, A. D. (see Elliott, G.), 375
Rogers, R. W. & Clifford, H. T., The taxonomic and evolutionary significance of leaf longevity, 811
Sachs, T. & Novoplansky, N., The development and patterning of stomata and glands in the epidermis of *Peperomia*, 567
St. John, J. A., Bonnett, G. D. & Simpson, R. J., Fructosyltransferase activities from *Lolium rigidum* Gaudin, 705
Sarwar, G. (see Bhatti, A. S.), 539
Sbrana, C. (see Giovannetti, M.), 115
Scheidegger, C. & Brunner, I., Freeze-fracturing for low-temperature scanning electron microscopy of Hartig net in synthesized *Picea abies* – *Hebeloma crustuliniforme* and – *Tricholoma vaccinum* ectomycorrhizas, 123
Schnyder, H., The role of carbohydrate storage and redistribution in the source–sink relations of wheat and barley during grain filling – a review, 233
Schönherr, J. (see Schreiber, L.), 547
Schreiber, L. & Schönherr, J., Uptake of two chlorinated chemicals in conifer needles: reversibility and compartmental analysis, 547
Schreiner, R. P. & Koide, R. T., Antifungal compounds from the roots of mycotrophic and non-mycotrophic plant species, 99
——, Koide, R. T., Mustards, mustard oils and mycorrhizas, 107
Schuster, A., Noy-Meir, I., Heyn, C. C. & Dafni, A., Pollination-dependent female reproductive success in a self-compatible outcrosser, *Asphodelus aestivus* Brot., 165
Sharma, G. D. (see Jha, D. K.), 307

SHAW, P. J. A., HOLLAND M. R., , DARRALL, N. M. & MCLEOD, A. R., The occurrence of SO_2-related foliar symptoms on Scots pine (*Pinus sylvestris* L.) in an open-air forest fumigation experiment, 143
SHERIDAN, A. (see TIPPING, R.), 585
SHERRILL, D. E. (see HEAGLE, A. S.), 751
SHIOMI, N., Structure of fructopolysaccharide (asparagosin) from roots of asparagus (*Asparagus officinalis* L.), 263
SIMMONS, I. G. (see TURNER, J.), 599
SIMPSON, R. J. (see BONNETT, G. D.), 443
——, BONNETT, G. D., Fructan exohydrolase from grasses, 453
——, (see ST. JOHN, J. A.), 705
SIMS, I. M., HORGAN, R. & POLLOCK, C. J., The kinetic analysis of fructan biosynthesis in excised leaves of *Lolium temulentum* L., 25
SINN, J. P. (see PELL, E. J.), 153
SMITH, V. R., Effect of nutrients on CO_2 assimilation by mosses on a sub-Antarctic island, 693
STEINERT, S. (see BHATTI, A. S.), 539
STRAND, M., Photosynthetic activity of Scots pine (*Pinus sylvestris* L.) needles during winter is affected by exposure to SO_2 and NO_2 during summer, 133
STRIBLEY, D. P. (see AMIJEE, F.), 297
TERTULIANO, M. F. & FIGUEIREDO-RIBEIRO, R. C. L., Distribution of fructose polymers in herbaceous species of Asteraceae from the cerrado, 741
THEAKER, A. J. & BRIGGS, D., Genecological studies of groundsel (*Senecio vulgaris* L.). IV. Rate of development in plants from different habitat types, 185
THOMAS, V. J. (see CARADUS, J. R.), 175
TINKER, P. B. (see AMIJEE, F.), 297
TIPPING, R., EDMONDS, M. & SHERIDAN, A., Palaeoenvironmental investigations directly associated with a neolithic axe 'quarry' on Beinn Lawers, near Killin, Perthshire, Scotland, 585
TRIBOÏ, E. (see BANCAL, P.), 247
TUOMISTO, H. & NEUVONEN, S., How to quantify differences in epicuticular wax morphology of *Picea abies* (L.) Karst. needles, 787
TURNAU, K., KOTTKE, I. & OBERWINKLER, F., Element localization in mycorrhizal roots of *Pteridium aquilinum* (L.) Kuhn collected from experimental plots treated with cadmium dust, 313
TURNER, A. P. & DICKINSON, N. M., Survival of *Acer pseudoplatanus* L. (sycamore) seedlings on metalliferous soils, 509
——, DICKINSON, N. M., Copper tolerance of *Acer pseudoplatanus* L. (sycamore) in tissue culture, 523
TURNER, J., INNES, J. B. & SIMMONS, I. G., Spatial diversity in the mid-Flandrian vegetation history of North Gill, North Yorkshire, 599
VAN ASSCHE, J. A. (see COLPAERT, J. V.), 325
VAN DEN BOSCH, J. (see CARADUS, J. R.), 175
VAN DEN ENDE, W. & VAN LAERE, A., Purification and properties of an invertase with sucrose: sucrose fructosyltransferase (SST) activity from the roots of *Cichorium intybus* L., 31
VAN LAERE, A. (see VAN DEN ENDE, W.), 31
VARNEY, G. T. & CANNY, M. J., Rates of water uptake into the mature root system of maize plants, 775
VERES, J. S., COFER, G. P. & JOHNSON, G. A., Magnetic resonance imaging of leaves, 769
VILARIÑO, A. (see ARINES, J.), 763
WALKER, David, Errata. *The New Phytologist* **121** (1992), 325–345, 225
WEISER, R. L. (see DOULIS, A. G.), 365
WENTWORTH, J. E. (see GORNALL, R. J.), 383
WESSELS, J. G. H., Tansley Review No. 45. Wall growth, protein excretion and morphogenesis in fungi, 397
WEST, R. G., ANDREW, R. & PETTIT, M., Taphonomy of plant remains on floodplains of tundra rivers, present and Pleistocene, 203
WEWALA, S. (see CARADUS, J. R.), 175
WIEDENROTH, E. M. (see ALBRECHT, G.), 471
WILLIAMS, J. (see EAGLES, C. F.), 477
WILLIAMS, J. H. H., COLLIS, B. E., POLLOCK, C. J., WILLIAMS, M. L. & FARRAR, J. F., Variability in the distribution of photoassimilates along leaves of temperate gramineae, 699
WILLIAMS, M. L. (see WILLIAMS, J. H. H.), 699
WINNER, W. E. (see PELL, E. J.), 153
WOOD, J. A. (see PRITCHARD, H. W.), 801

Subject Index

Acer pseudoplatanus (sycamore), 509, 523
Acridine orange, 375
Aeroponic culture, 775
Agropyron desertorum, 485
Air pollution, 359, 751, 787
Akinetes, 53, 65
Allium porrum, 297
Aluminium toxicity, 531
Amino acid transport, 227
Anabaena, 53, 65
Anion exchange separation, 247
Anthropogenic activity, 585
Antifungal compounds, 99
Appressorium, 115
Araceae, 801
Argenteum, 271
Arginine decarboxylase, 415
Arum maculatum (cuckoo-pint), 801
Asparagosin, 263
Asparagus officinalis, 263
Asphodelus aestivus, 165
Asteraceae, 735, 741
Asterales, 3
Asymmetric divisions, 567
Avena, 477
Azolla, 53, 65
Branch roots, 775
Bryophyte, 693
Burning, 77
Cacti, 499
Cadmium, 325
Calcification, 673
Calcite, 679
Calcium, 531
Callus culture, 421
Cape floristic region, 575
Carbohydrate, 3, 471
Carbohydrate balance, 255
Carbohydrate gradients, 699
Carbon, 93
Carbon dioxide effects, 751
Carbon partitioning, 153
Cellulases, 555
Cell-wall assembly, 397
Cerrado, 741
Cerrado vegetation, 735
Chemotaxis, 289
Chlorella autotraphica, 685
Chlorinated chemicals, 547
Chlorophyll fluorescence, 133
Chloroplasts, 657
Chromosome numbers, 383
Cichorium intybus, 31
Cold-tolerance, 3, 477
Compensation, 153
Competition, 93
Conifer needles, 547
Cortical cell death, 375
Cotton, 289
Cyclic photophosphorylation, 665
Cytology, 383
Dasycladales, 3
Diatrypaceae, 421
Dissolved organic carbon, 679
Drought, 499
Dry autoradiography, 227
Dry matter partitioning, 491
Ectomycorrhizas, 325
EELS microanalysis, 313
Elm decline, 585
Embryo, 65
Embryo culture, 801
Emergent growth in fungi, 397
Emiliania huxleyi, 673, 679
Encystment, 289
Endomycorrhiza, 313
Endomycorrhizins, 763
Endophytes, 421
Energy distribution, 665
Enzyme kinetics, 685
Epicuticular wax, 547
Epicuticular wax morphology, 787
Epidermal trichomes, 53, 65
Episodic ozone, 351
Ericaceae, 575
Errata, 225
Erysiphe pisi, 277
Ethylene, 555
Evolution, 811
Fagus sylvatica (beech) stomatal resistance, 351
Festuca arundinacea, 255
Fire, 77
Flowering, 45
Fluorescent tracers, 227
Foliar injury, 143
Foliar uptake, 547
Frankia, 307
Freeze-fracturing, 123
Fructan, 15, 25, 31, 255, 263, 429, 471, 699, 735, 741
Fructan exohydrolase (FEH), 247, 443, 453
Fructan hydrolysis, 443
Fructan metabolism, 437, 717
Fructan mobilization, 453
Fructan oligomer, 725
Fructan synthesis, 15, 705
Fructan:fructan fructosyltransferase (FFT), 15, 437, 717
β-Fructofuranosidase, 443, 453
Fructopolysaccharide, 263
Fructosyl transfer, 15
β-D-Fructosyltransferase, 429
Fruit abscission, 555
Fruit-body formation, 397
Fungal cell wall, 397
Fungal growth, 335
Gene expression and regulation, 429
Genetic variation, 335
Germination, 289
Glands, 567
Glomus mosseae, 297
Glucosinolates, 99, 107
Glutamate dehydrogenase, 685
Glutamine synthetase, 685
Glutathione, 365
Glutathione reductase isoenzymes, 365
Glycine max (soybean), 531
Grafting, 491
Grain filling, 233
Grasses, 453
Grassland, 77
Groundsel (*Senecio vulgaris*), 185
Growth analysis, 39
Hartig net, 123
Heavy metals, 313, 345
Hebeloma, 335
Helianthus tuberosus, 717
Hordeum vulgare (barley), 233, 359
Hydraulic conductivity, 499
Hydrophobins, 397
Hypoxia, 471
Incompatibility, 107

Industrial pollution, 313
Inorganic carbon, 673
Intralamellar vesicles, 657
Inulin, 717
Invertase, 31, 443, 453, 705
Ion distribution, 539
Isothiocyanates, 99, 107
Jungermanniales, 3
1-Kestose, 725
6-Kestose, 725
Kestoses, 247
Kinetics, 485
Leaf abscission, 555
Leaf age, 539
Leaf conductance, 491
Leaf longevity, 811
Leaf surface, 547
Leaves, 25, 769
Leptochloa fusca (Kallar grass), 539
Lichens, 345
Light, 673
Lipid composition, 657
Lolium, 477
Lolium perenne (perennial ryegrass), 39
Lolium rigidum, 443, 705
Lolium temulentum, 25, 699
Low temperature, 255
Lower Channel muds, 195
Lower epidermis, 271
Low-temperature scanning electron microscopy, 123
Macroscopic plant remains, 203
Main apex, 477
Marsworth, 195
Megagametophyte, 65
Megasporocarps, 65
Meristemoids, 567
Mesolithic, 599
Metabolic inhibitors, 277
Metal tolerance, 509, 523
Mid-Holocene, 585
Morphology, 175
MR imaging, 769
Mycorrhiza, 77, 307
Mycorrhizal symbiosis, 335
Neokestose, 725
^{15}N dilution method, 359
Nitrate uptake, 485
Nitrogen, 375, 673
Nitrogen assimilation, 685
Nitrogen dioxide, 133, 359
Nitrogenase activity, 307
Non-cyclic photophosphorylation, 665
North York Moors, 599
Nutrient response, 693
Nutrient use, 77
Nutrients, 801
Nutritional conditions, 335
$O_2^{\cdot-}$, 345
Oat (*Avena* spp.), 725
Obituary, 1
Oligosaccharide, 25
Open-top chambers, 359
Ophiostoma ulmi, 415
Ornithine decarboxylase, 415
Osmotic filtration, 775
Ozone, 153
Ozone stress, 751
Parnassia (Saxifragaceae), 383
Pathogenicity, 421
Peach, 555
Peat inception, 599
Phenological phases, 735
Phenotypic plasticity, 175
Phloem, 539
Phloem-mobility, 539
Phosphate, 307
Phosphorus, 175, 375
Photoacclimation, 665
Photomorphogenesis, 45
Photosynthate storage and redistribution, 233
Photosynthesis, 133, 693
Phytochrome, 45
Phytoplankton, 665
Picea abies (Norway spruce), 787
Picea rubens (red spruce), 365
Pinus sylvestris (Scots pine), 133, 143, 325
Pisum sativum, 271, 277, 283
Plant density, 39
Plant macrofossils, 195
Plant tissue culture, 523
Plant-derived smoke, 575
Plastoglobuli, 657
Pleistocene and Recent, 203
Poales, 3
Pollen analyses, 585
Pollen quality, 165
Pollen quantity, 165
Pollen spectra, 203
Pollination limitation, 165
Pollution, 509, 523
Polyamine biosynthesis inhibitors, 415
Polyamines, 415
Polygalacturonases, 555
Potassium, 283
Powdery mildew infection, 283
Prairie, 77
Precocity, 185
Pre-infection events, 115
Productivity, 77
Protein excretion in fungi, 397
Proteins, 763
Pteridium aquilinum (bracken), 313
Pythium aphanidermatum, 289
Pythium catenulaum, 289
Pythium dissotocum, 289
Radish, 153
Rate of development, 185
Re-aeration, 471
Receptors, 289
Recognition, 115
Recovery, 477
Resistance, 107
Respiration, 39
Restionaceae, 575
Reversed phase HPLC, 725
Root hairs, 531
Roots, 289, 485, 499, 775
Sampling strategy, 787
Sand prairie, 77
Schizachyrium scoparium (little bluestem), 77
Secretion, 429
Seed and embryo germination, 801
Seed germination, 575
SEM, 787
Senescence, 185
Soil moisture deficit, 153
Soil nitrogen, 485
Soil phosphorus, 297
Soil temperature, 485
Solanum tuberosum (potato), 491
Soluble carbohydrate, 297
Source–sink relations, 233
Spacing patterns, 567
Split-root, 93
Sporocarps, 53
SST, 31
Starch, 699
Stem growth, 45
Stomata, 567
Streptococcus salivarius, 429
Sub-Antarctic, 693
Sucrose, 25, 31, 255, 429, 437, 699
Sucrose:sucrose fructosyltransferase (SST), 15, 247, 705
Sugar analysis, 283
Sugar efflux, 283
Sugar uptake, 271, 277

Suillus spp., 325
Sulphite oxidation, 345
Sulphur dioxide, 133, 143
Superoxide dismutase, 365, 763
Symbiosis, 65
Symplastic transport, 227
Synthesized ectomycorrhizas, 123
The Tansley Fund of *The New Phytologist* Trust, 395
Taphonomy, 203
Taraxacum officinale, 437
Taxonomy, 811
Temperature, 801
Tillers, 477
Tip growth, 397
Toxicity, 509
Trade-offs, 185
Transfer cells, 53, 65
Transpiration, 775
Trees, 509, 523
Trifolium pratense (red clover), 763
Trifolium repens (white clover), 175, 751
Tripartite association, 307
Triticum aestivum (wheat), 45, 233, 471, 699
Tundra, 203
Ulmus decline, 599
Underground organs, 735, 741
VA mycorrhizas, 763
Vegetation history, 599
Vesicular–arbuscular mycorrhiza, 93, 99, 107, 115, 297
Water movement, 227
Water stress, 3, 351, 491
Water uptake, 775
Wheat, 247, 375
Winter hardening, 365
Xylariaceae, 421
Xylem, 499, 539
Xylem sap, 227
Yield, 39, 175
Zea mays, 775
Zoospores, 289

REVIEWS

Index of Books Received

ACEVEDO, E., CONESA, A. P., MONNEVEUX, P. & SRIVASTAYA, J. P. (Eds), *Physiology – Breeding of Winter Cereals for Stressed Mediterranean Environments. (Physiologie – Sélection des céréales d'hiver en conditions méditerranéennes)* 652

BARRETT, S. C. H. (Ed.), *Evolution and Function of Heterostyly* 654

BLACKMORE, S. & KNOX, R. B. (Eds), *Microspores: Evolution and Ontogeny* 393

BONGA, J. M. & ADERKAS, P. von, *In vitro Culture of Trees* 653

, *CHCD Dictionary of Natural Products on CD-ROM* 650

CHARLWOOD, B. V. & BANTHORPE, D. V. (Eds), *Methods in Plant Biochemistry (Series Eds. P. M. Dey and J. B. Harborne); Vol. 7: Terpenoids* 649

CRAWFORD, D. J., *Plant Molecular Systematics* 651

DICKSON, J. H., *Wild Plants of Glasgow* 655

FRENZEL, B., PESCI, M. & VELICHKO, A. A. (Eds), *Atlas of the Paleoclimates and Paleoenvironments of the Northern Hemisphere: Late Pleistocene–Holocene* 826

GATEHOUSE, A. M. R., HILDER, V. A. & BOULTER, D. (Eds), *Plant Genetic Manipulation for Crop Protection* 652

HERZIG, R. & URECH, M., *Flechten als Bioindikatoren. Integriertes biologisches Meßsystem der Luftverschmutzung für das Schweizer Mittelland* 654

HILL, M. O., PRESTON, C. D. & SMITH, A. J. E., *Atlas of the Bryophytes of Britain and Ireland*; Vol. 2, *Mosses (except Diplolepideae)* 826

JONES, H. G., *Plants and Microclimate. A Quantitative Approach to Environmental Plant Physiology*, 2nd edn. 390

LAST, F. I. & WATLING, R., *Acidic Deposition. Its Nature and Impacts* 390

LESHEM, Y. Y., WILLMER, C. M. & PANTOJA, O., *Plant Membranes: a Biophysical Approach to Structure, Development and Senescence* 649

MARGULIS, L., CORLISS, J. O., MELKONIAN, M. & CHAPMAN, D. J. (Eds), *Handbook of Protoctista* 223

MENGEL, K., PILBEAM, D. J. & (EDS), , *Nitrogen Metabolism of Plants* 823

MULLINS, M. G., BOUQUET, A. & WILLIAMS, L. E., *Biology of the Grapevine* 391

NOVACEK, M. J. & WHEELER, Q. D. (Eds), *Extinction and Phylogeny* 824

REISSER, W. (Ed.), *Algae and Symbiosis: Plants, Animals, Fungi, Viruses, Interactions Explored* 392

RUDALL, P., *Anatomy of Flowering Plants* 825

SIMONS, P., *The Action Plant. Movement and Nervous Behaviour in Plants* 389

WARDLE, P., *Vegetation of New Zealand* 392

WOOLFE, J. A., *Sweet Potato – An Untapped Food Resource* 391

WRAY, J. L. (Ed.), *Inducible Plant Proteins. Their Biochemistry and Molecular Biology*. Society for Experimental Biology Seminar series, Vol. 49 389

Index of Reviewers

BAKER, A. J. M. 392
BROOKS, C. J. W. 649
COX, E. J. 223
DIXON, R. O. D. 823
EMES, M. 389
FIREK, S. 652
FORSTER, B. P. 652
JEFEFREE, C. E. 650
JOHN, A. 653
KEMP, R. F. O. 826
LYNDON, R. F. 825
MAGGS, R. 390
OWENS, S. J. 654
POSSINGHAM, J. V. 391
QUICKE, D. L. J. 824
SEAWARD, M. R. D. 654
SMITH, D. C. 392
SMITH, P. M. 651
STACE, C. A. 655
SUGDEN, D. E. 826
THOMAS, B. A. 393
THOMAS, H. 649
TREWAVAS, A. J. 389
TURNER, M. R. 391
VAN GARDINGEN, P. R. 390